Growth Visioning for Sustaining a Livable Region

SOUTHERN CALIFORNIA ASSOCIATION of GOVERNMENTS

Implications of the 2001 RTP Update on Urban Form

July 10, 2001

RFQ #01-116

Civic Technologies, Inc.

TECHNICAL MEMORANDUM

URBAN FORM IMPLICATIONS OF THE 2001 RTP UPDATE

Prepared by CIVIC Technologies, Inc.
September 15, 2001

"The mission of the Growth Visioning Subcommittee is to develop a process that assists local, subregional, and regional officials in developing strategies to accommodate growth that results in a preferred regional growth scenario."

--Growth Visioning Subcommittee Mission Statement

1.0 BACKGROUND

1.1 Introduction

The purpose of this project is to describe the urban form implications of the 2001 Regional Transportation Plan (RTP) Update (Project). The time frame for this Project was approximately the three month period from March to June 2001. Guidance and review of the work was under the auspices of the Growth Visioning Subcommittee.

This Project was undertaken to assist the Growth Visioning Subcommittee and SCAG staff prepare for the Growth Visioning process. The Growth Visioning process will be a major focus of SCAG's efforts over the next three years. Evolving sustainable growth and development patterns into the 21st century is critical to maintaining regional prosperity and improving quality of life. There is a recognition on the part of staff and elected officials that the next RTP in 2004 should consider an alternative regional vision, with appropriate policies and programs, than the vision inherent in the presumptions that underlie the 2001 RTP.

The impacts of population and employment growth on traffic congestion, housing needs, transportation investment choices, and air quality are significant long range planning issues. Ultimately the distribution of growth will be determined by millions of Southern Californians as they choose where to live, work, recreate, invest, and commute. Policy makers addressing these critical issues through the forums provided by SCAG and in their local communities have an opportunity to affect these choices leading to more sustainable growth and development patterns. Analyzing the effects of the 2001 RTP Update on future urban growth patterns is a key first step in the process of developing a sustainable regional growth vision.

1.2 Contents

The contents of this technical memorandum are organized as follows:

The following tables are included:

1.3 Goals and Objectives

The following goals and objectives were established for this work effort:

- **Goal 1:** Determine the urban form implications of the 2001 RTP Update.
  - Objective 1: Investigate and assess the implications of population and employment growth on subregions.
  - Objective 2: Investigate and assess land use and the extent to which it can absorb growth.
  - Objective 3: Investigate and assess transit and the extent to which it can absorb growth.
  - Objective 4: Investigate and assess the implications for jobs/housing balance at the subregional scale resulting from growth.
- **Goal 2:** Advance the state of knowledge of SCAG staff and the Growth Visioning Subcommittee about urban form as it relates to the 2001 RTP.
  - Objective 1: Utilize geographic information systems (GIS) to develop and communicate information.
  - Objective 2: Recommend methodologies and processes to inform and assist in the preparation of Phase II of SCAG's Growth Visioning Program.

2.0 FINDINGS

2.1 Introduction

To undertake this study the Consultant prepared a GIS-based carrying capacity analysis at the subregional scale of commercial and residential land use to accommodate the RTP's 2025 projected jobs and housing growth, and proposed transit projects. The study answers the question "how does the RTP distribution of jobs and housing compare with the ability of subregions to absorb that growth in terms of current land use, density, and transit infrastructure?"

A detailed description of the methodology is provided in section 3.0 Methodology. In summary, the methodology employs the following components:

1. A literature review of relevant documents.

2. An analysis of residential and commercial land use, and transit projects, within 13 subregions. This analysis is comprised of two components:

   - First, a three-part GIS analysis that identifies relevant residential land use areas, commercial land use areas, and transit projects, see Appendix 1.

   - Second, a spreadsheet that compares these land use areas with the designated subregional jobs and housing projections, see Appendix 2.

   Los Angeles County subregion and Imperial County subregion were not included in the analysis. Los Angeles County is currently updating their land use and did not make the data available. Therefore, the overall findings for North Los Angeles County subregion are not conclusive. Imperial County land use data is limited to city boundaries.

The methodology is limited to analyzing the carrying capacity of each subregion. This Project neither recommends adjustments to the RTP projections nor prepares any plan.

2.2 Products

The results of this work effort include the following products:

- This Technical Memorandum.

- A digital file of the GIS analysis as ArcView Project Record files (.apr) that were delivered to SCAG in September 2001 and which will be delivered to each of the subregions, Appendix 1.

- A digital file of a Microsoft Excel 2000 spreadsheet providing the carrying capacity calculations for housing, jobs, and transit for each subregion, Appendix 2.

- A digital file of a Microsoft PowerPoint 2000 presentation entitled "*Implications Of The 2001 RTP Update On Urban Form*" made to the Growth Visioning Subcommittee on May 24, 2001, Appendix 3.

- A digital file of a Microsoft PowerPoint 2000 presentation "*Findings: Implications Of The 2001 RTP Update On Urban Form*" made to the Growth Visioning Subcommittee on July 10, 2001, Appendix 4.

- A data dictionary for the GIS, Appendix 5.

2.3 Findings by Subregion

This section presents the major findings that describe the ability of the residential and commercial land use within each subregion to absorb the 2001 RTP Update's projected 2025 households and jobs (retail and service), respectively. Findings set forth below are organized by subregion and within each subregion by residential, jobs, and transit. Two analysis are provided for residential land use. One analyzes the carrying capacity of projected 2025 RTP households and the other analyzes the carrying capacity of the number of households needed to achieve jobs/housing balance.

There are several limitations which circumscribed the work effort. Those limitations, together with recommendations for overcoming them, are described in section 4.0 Limitations and Recommendations. The following four tables are referred to by the text that follows.

Table 1, Summary of Housing Carrying Capacity

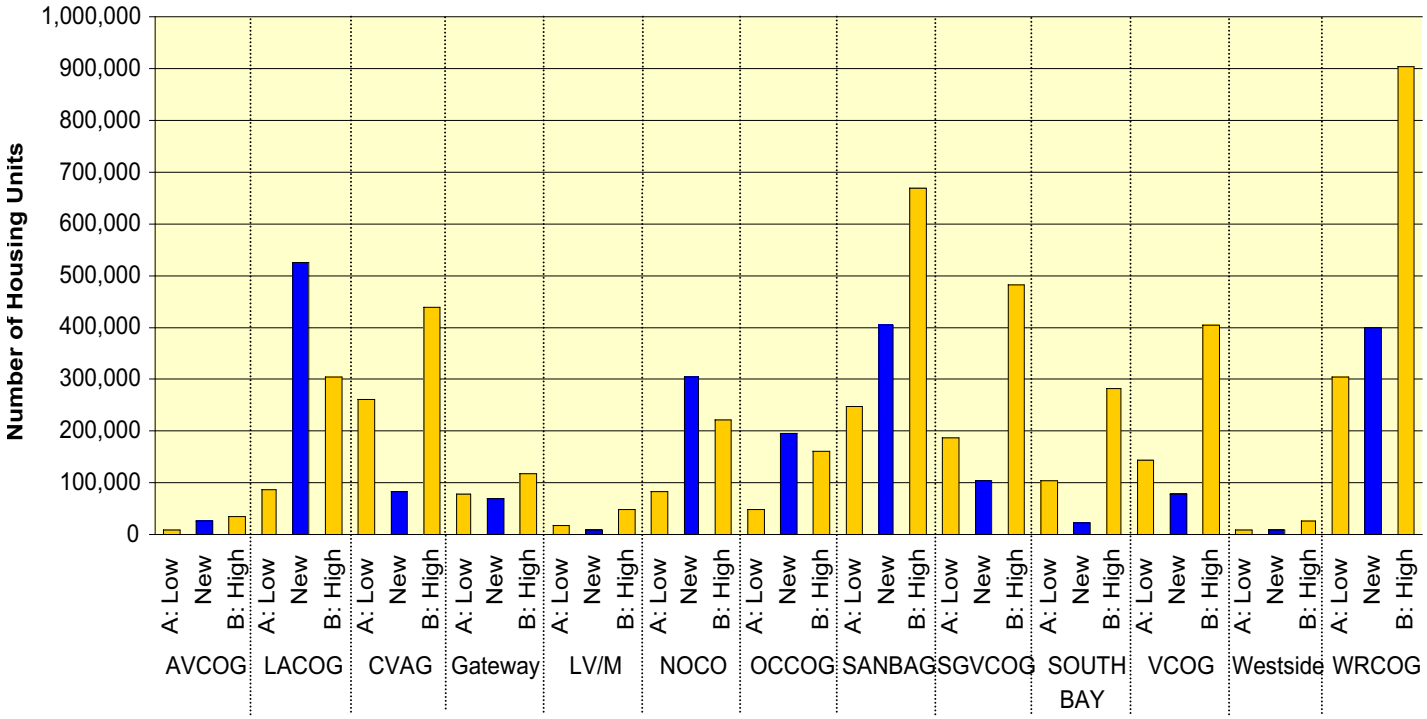


Table 2, Summary of Housing Units Needed to Achieve Jobs/Housing Balance

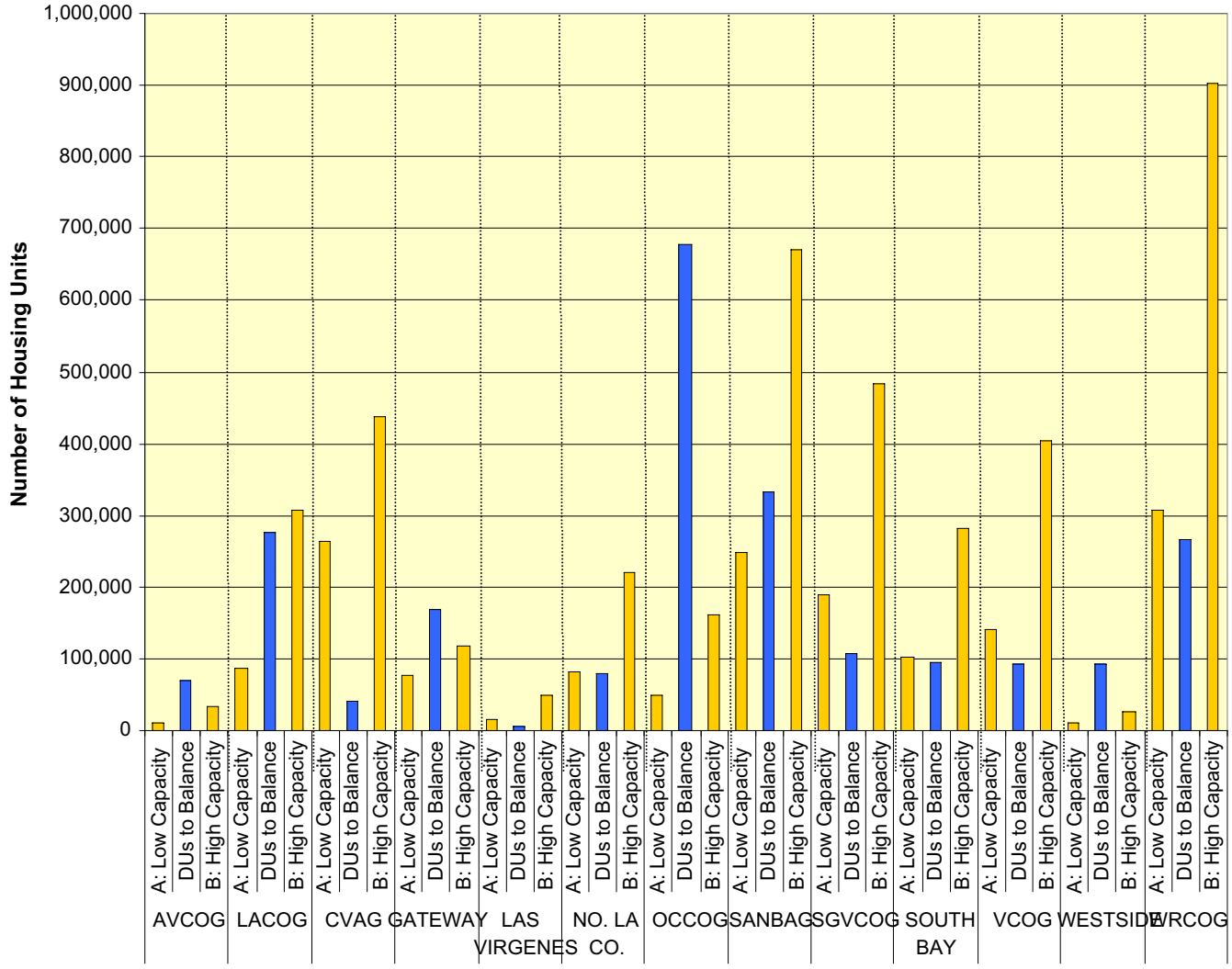


Table 3, Summary of Jobs Carrying Capacity

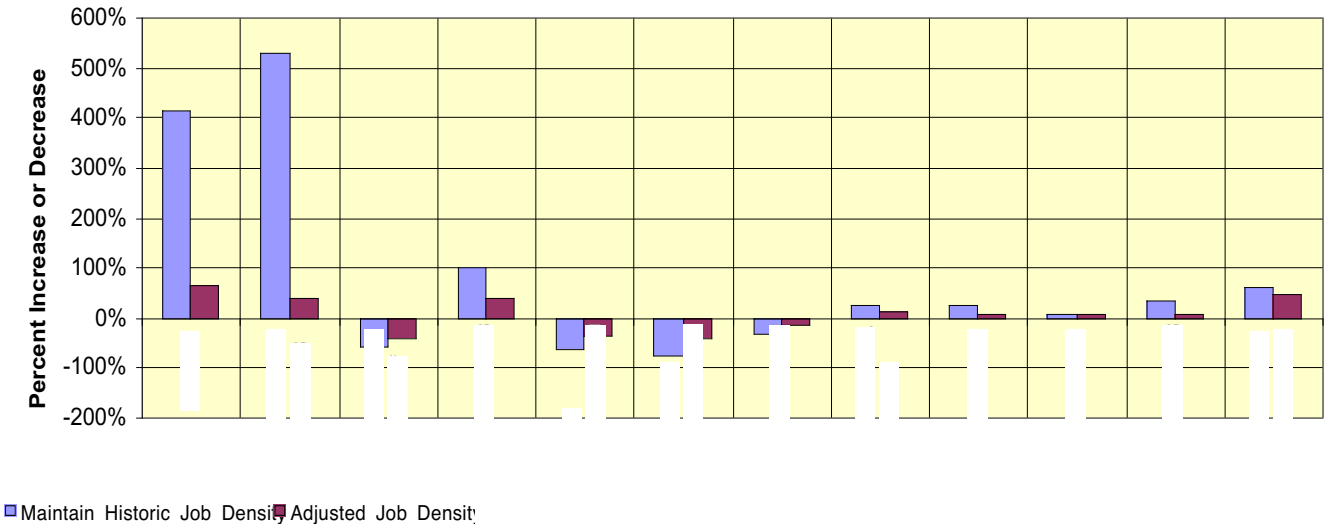
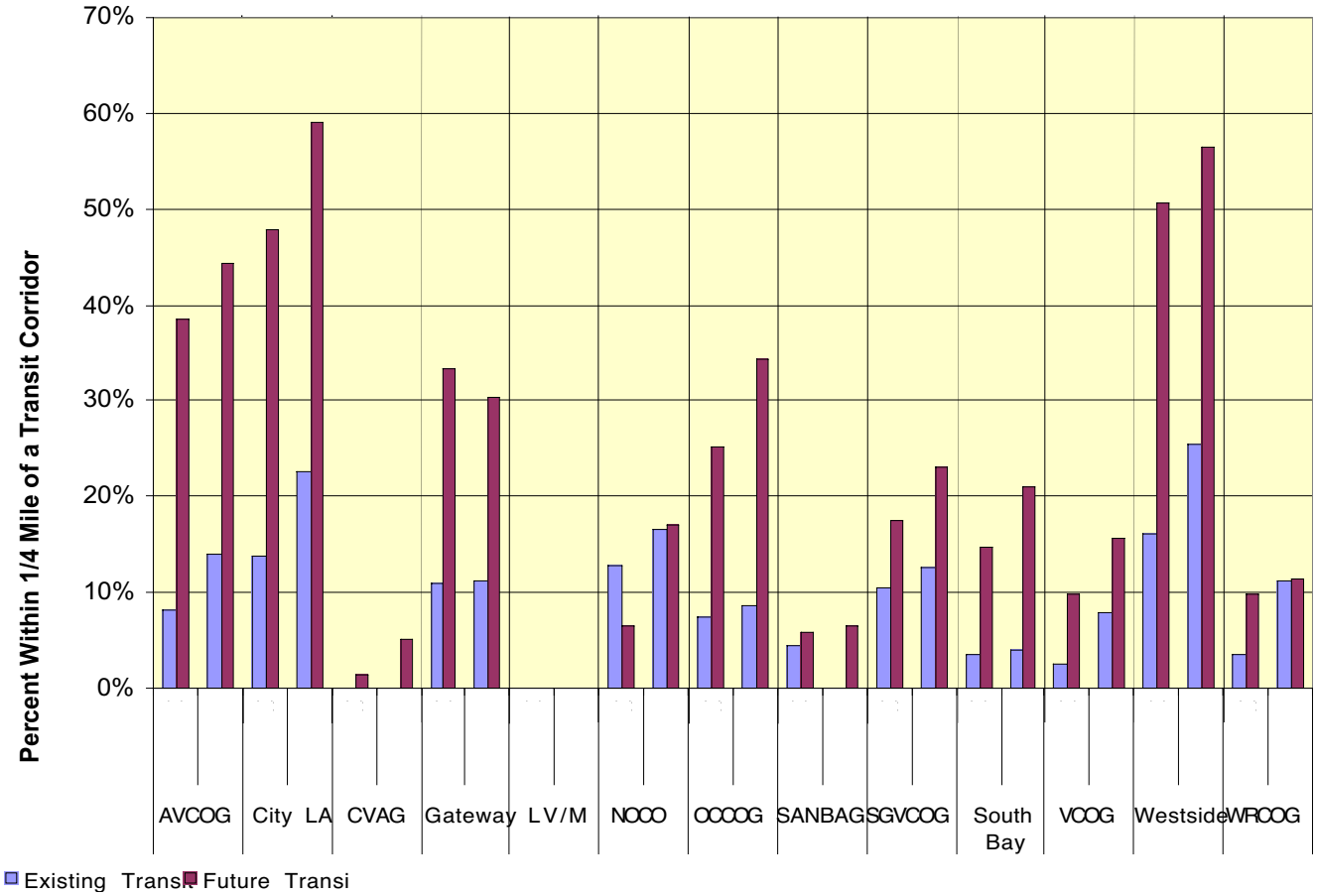


Table 4, Summary of Transit/Land Use Carrying Capacity



2.3.1 Arroyo Verdugo

1. **Residential, see Appendix 2, Worksheet 1: Residential Summaries and Tables 1 and 2**

   The RTP requires 25,960 new households which is equivalent to 27,258 new dwelling units (DUs).

   The GIS analysis indicates that general plan medium density residential (MDR) provides 1,031 net acres; general plan high density residential (HDR) provides 306 net acres.

   Utilizing Scenario A: Low End, which has an historic ratio of 6 DUs/acre for MDR and 19 DUs/acre for HDR the subregion could accommodate 9,693 DUs.

   Utilizing Scenario B: High End, which has an historic ratio of 19 DUs/acre for MDR and up to 51 DUs/acre for HDR the subregion could accommodate 33,459 DUs.

   Scenario A: Low End does not provide sufficient DUs to meet the RTP projections. Scenario B: High End barely meets the RTP projection.

   Policy options for this subregion include increasing general plan MDR and/or HDR areas or building at the higher end of the historic density.

   To provide new DUs to meet the RTP's projected service and retail job growth for this subregion, 68,727 new DUs need to be added. This would far outstretch either Scenario A or B requiring significant additional MDR/HDR land use area and increased density above historic norms.

2. **Jobs, see Appendix 2, Worksheet 2: Jobs Summaries and Table 3**

   The RTP requires 57,611 new retail and service jobs.

   The historic job density for this subregion is 40 jobs/acre (70,538 jobs at 1,772 net acres). The GIS analysis indicates 282 net acres of new general plan commercial land use.

   To maintain the historic density of 40 jobs/acre, only 11,225 jobs could be accommodated on the 282 net acres. At the same density, the remaining 46,386 jobs would need to be accommodated on an additional 1,165 net acres of commercial land, a 413% increase.

   Alternatively, if all the new jobs were accommodated throughout commercially designated land, the job density would increase by 65% to 66 jobs/acre.

   Policy options are either to designate additional commercial land use or to expect more dense commercial areas.

3. **Transit, see Appendix 2, Worksheet 3: Transit Summaries and Table 4**

   8% of existing MDR/HDR and 14% of existing jobs are within a _ mile of existing transit corridors. Based upon general plan designations 39% of MDR/HDR and 44% of jobs will be within a _ mile of existing and future transit corridors. This indicates that both projected DUs and jobs are leveraging the public transit investment.

2.3.2 City of Los Angeles

1. **Residential, see Appendix 2, Worksheet 1: Residential Summaries and Tables 1 and 2**

   The RTP requires 502,263 new households which is equivalent to 527,376 new dwelling units (DUs).

   The GIS analysis indicates that general plan medium density residential (MDR) provides 6,533 net acres; general plan high density residential (HDR) provides 1,116 net acres.

   Utilizing Scenario A: Low End, which has an historic ratio of 10 DUs/acre for MDR and 30 DUs/acre for HDR the subregion could accommodate 87,299 DUs.

   Utilizing Scenario B: High End, which has an historic ratio of 30 DUs/acre for MDR and up to 109 DUs/acre for HDR the subregion could accommodate 306,135 DUs.

   Neither Scenario A: Low End nor Scenario B: High End meets the RTP projections.

   Policy options for this subregion include increasing general plan MDR and/or HDR areas or increasing density above historic norms.

   To provide new DUs to meet the RTP's projected service and retail job growth for this subregion, 276,332 new DUs need to be added. Scenario B: High End could meet this demand.

2. **Jobs, see Appendix 2, Worksheet 2: Jobs Summaries and Table 3**

   The RTP requires 293,871 new retail and service jobs.

   The historic job density for this subregion is 40 jobs/acre (651,574 jobs at 16,202 net acres). The GIS analysis indicates 1,161net acres of new general plan commercial land use.

   To maintain the historic density of 40 jobs/acre, only 46,672 jobs could be accommodated on the 1,161 net acres. At the same density, the remaining 247,199 jobs would need to be accommodated on an additional 6,147 net acres of commercial land, a 530% increase.

   Alternatively, if all the new jobs were accommodated throughout commercially designated land, the job density would increase by 37% to 55 jobs/acre.

   Policy options are either to designate additional commercial land use or to expect more dense commercial areas.

3. **Transit, see Appendix 2, Worksheet 3: Transit Summaries and Table 4**

   14% of existing MDR/HDR and 23% of existing jobs are within a _ mile of existing transit corridors. Based upon general plan designations 48% of MDR/HDR and 59% of jobs will be within a _ mile of existing and future transit corridors. This indicates that the projected DUs and jobs are leveraging the public transit investment.

2.3.3 Coachella Valley

1. Residential, see Appendix 2, Worksheet 1: Residential Summaries and Tables 1 and 2

The RTP requires 77,716 new households which is equivalent to 81,602 new dwelling units (DUs).

The GIS analysis indicates that general plan medium density residential (MDR) provides 10,662 net acres; general plan high density residential (HDR) provides 12,892 net acres.

Utilizing Scenario A: Low End, which has an historic ratio of 7 DUs/acre for MDR and 15 DUs/acre for HDR the subregion could accommodate 262,881 DUs.

Utilizing Scenario B: High End, which has an historic ratio of 15 DUs/acre for MDR and up to 22 DUs/acre for HDR the subregion could accommodate 438,420 DUs.

Both Scenario A: Low End and Scenario B: High End meet the RTP projections.

To provide new DUs to meet the RTP's projected service and retail job growth for this subregion, 41,916 new DUs need to be added. Either Scenario A: Low End or Scenario B: High End could meet this demand.

2. Jobs, see Appendix 2, Worksheet 2: Jobs Summaries and Table 3

The RTP requires 43,855 new retail and service jobs.

The historic job density for this subregion is 11 jobs/acre (34,125 jobs at 3,083 net acres). The GIS analysis indicates 9,601 net acres of new general plan commercial land use.

To maintain the historic density of 11 jobs/acre, 106,370 jobs could be accommodated on the 9,601 net acres, significantly more than projected. Therefore, general plan commercial land use could be reduced by 5,643 net acres, or 59%, and still meet the projected jobs at current the current jobs/acre density.

If all the new jobs were accommodated throughout commercially designated land, the job density would decrease by 43% to 6 jobs/acre.

Policy options are to re-designate commercial land use to other uses such as residential or to accommodate more jobs.

3. Transit, see Appendix 2, Worksheet 3: Transit Summaries and Table 4

0% of existing MDR/HDR and 0% of existing jobs are within a _ mile of existing transit corridors. Based upon general plan designations 1% of MDR/HDR and 5% of jobs will be within a _ mile of existing and future transit corridors. This indicates that the projected DUs and jobs are leveraging, albeit at a low level, the public transit investment.

2.3.4 Gateway Cities

1. **Residential, see Appendix 2, Worksheet 1: Residential Summaries and Tables 1 and 2**

   The RTP requires 66,919 new households which is equivalent to 70,265 new dwelling units (DUs)

   The GIS analysis indicates that general plan medium density residential (MDR) provides 6,381 net acres; general plan high density residential (HDR) provides 1,596 net acres.

   Utilizing Scenario A: Low End, which has an historic ratio of 10 DUs/acre for MDR and 15 DUs/acre for HDR the subregion could accommodate 76,904 DUs.

   Utilizing Scenario B: High End, which has an historic ratio of 15 DUs/acre for MDR and up to 21 DUs/acre for HDR the subregion could accommodate 118,385 DUs.

   Scenario A: Low End barely provides sufficient DUs to meet the RTP projections. Scenario B: High End meets the RTP projection.

   Policy options for this subregion include increasing general plan MDR and/or HDR areas or building at the higher end of the historic density.

   To provide new DUs to meet the RTP's projected service and retail job growth for this subregion, 167,876 new DUs need to be added. This would far outstretch either Scenario A or B requiring significant additional MDR/HDR land use area and increased density above historic norms.

2. **Jobs, see Appendix 2, Worksheet 2: Jobs Summaries and Table 3**

   The RTP requires 160,300 new retail and service jobs.

   The historic job density for this subregion is 23 jobs/acre (215,561 jobs at 9,547 net acres). The GIS analysis indicates 3,560 net acres of new general plan commercial land use.

   To maintain the historic density of 23 jobs/acre, only 80,379 jobs could be accommodated on the 3,560 net acres. At the same density, the remaining 151,160 jobs would need to be accommodated on an additional 3,540 net acres of commercial land, a 99% increase.

   Alternatively, if all the new jobs were accommodated throughout commercially designated land, the job density would increase by 37% to 31 jobs/acre.

   Policy options are either to designate additional commercial land use or to expect more dense commercial areas.

3. **Transit, see Appendix 2, Worksheet 3: Transit Summaries and Table 4**

   11% of existing MDR/HDR and 11% of existing jobs are within a _ mile of existing transit corridors. Based upon general plan designations 33% of MDR/HDR and 30% of jobs will be within a _ mile of existing and future transit corridors. This indicates that the projected DUs and jobs are leveraging the public transit investment.

2.3.5 Las Virgenes/Malibu

1. Residential, see Appendix 2, Worksheet 1: Residential Summaries and Tables 1 and 2

The RTP requires 9,168 new households which is equivalent to 9,626 new dwelling units (DUs).

The GIS analysis indicates that general plan medium density residential (MDR) provides 3,901 net acres; general plan high density residential (HDR) provides 119 net acres.

Utilizing Scenario A: Low End, which has an historic ratio of 5 DUs/acre for MDR and 12 DUs/acre for HDR the subregion could accommodate 16,292 DUs.

Utilizing Scenario B: High End, which has an historic ratio of 12 DUs/acre for MDR and up to 48 DUs/acre for HDR the subregion could accommodate 47,865 DUs.

Both Scenario A: Low End and Scenario B: High End meet the RTP projection.

To provide new DUs to meet the RTP's projected service and retail job growth for this subregion, 5,821 new DUs need to be added. Both Scenario A and Scenario B would meet this demand.

2. Jobs, see Appendix 2, Worksheet 2: Jobs Summaries and Table 3

The RTP requires 7,648 new retail and service jobs.

The historic job density for this subregion is 19 jobs/acre (11,835 jobs at 610 net acres). The GIS analysis indicates 1,043 net acres of new general plan commercial land use.

To maintain the historic density of 19 jobs/acre, 20,235 jobs could be accommodated on the 1,043 net acres, significantly more than projected. Therefore, general plan commercial land use could be reduced by 649 net acres, or 62%, and still meet the projected jobs at current the current jobs/acre density.

If all the new jobs were accommodated throughout commercially designated land, the job density would decrease by 38% to 12 jobs/acre.

Policy options are to re-designate commercial land use to other uses such as residential or to accommodate more jobs.

3. Transit, see Appendix 2, Worksheet 3: Transit Summaries and Table 4

0% of existing MDR/HDR and 0% of existing jobs are within a _ mile of existing transit corridors. Based upon general plan designations 0% of MDR/HDR and 0% of jobs will be within a _ mile of existing and future transit corridors. The GIS analysis indicates that there is no transit investment in this subregion.

2.3.6 North Los Angeles County

Note: As stated above, Los Angeles County was not able to make certain land use data available for this study. Therefore, findings are not conclusive.

1. **Residential, see Appendix 2, Worksheet 1: Residential Summaries and Tables 1 and 2**

   The RTP requires 291,330 new households which is equivalent to 305,897 new dwelling units (DUs).

   The GIS analysis indicates that general plan medium density residential (MDR) provides 14,574 net acres; general plan high density residential (HDR) provides 2,445 net acres.

   Utilizing Scenario A: Low End, which has an historic ratio of 5 DUs/acre for MDR and 13 DUs/acre for HDR the subregion could accommodate 82,599 DUs.

   Utilizing Scenario B: High End, which has an historic ratio of 13 DUs/acre for MDR and up to 23 DUs/acre for HDR the subregion could accommodate 221,219 DUs.

   Neither Scenario A: Low End nor Scenario B: High End meet the RTP projection.

   Policy options for this subregion include increasing general plan MDR and/or HDR areas or increasing density above historic norms.

   To provide new DUs to meet the RTP's projected service and retail job growth for this subregion, 79,184 new DUs need to be added. Both Scenario A and Scenario B would meet this demand.

2. **Jobs, see Appendix 2, Worksheet 2: Jobs Summaries and Table 3**

   The RTP requires 94,039 new retail and service jobs.

   The historic job density for this subregion is 113 jobs/acre (334,248 jobs at 2,962 net acres). The GIS analysis indicates 3,566 net acres of new general plan commercial land use.

   To maintain the historic density of 113 jobs/acre, 402,327 jobs could be accommodated on the 3,566 net acres, significantly more than projected. Therefore, general plan commercial land use could be reduced by 2,732 net acres, or 77%, and still meet the projected jobs at current the current jobs/acre density.

   If all the new jobs were accommodated throughout commercially designated land, the job density would decrease by 39% to 68 jobs/acre.

   Policy options are to re-designate commercial land use to other uses such as residential or to accommodate more jobs.

3. **Transit, see Appendix 2, Worksheet 3: Transit Summaries and Table 4**

   13% of existing MDR/HDR and 17% of existing jobs are within a _ mile of existing transit corridors. Based upon general plan designations 7% of MDR/HDR and 17% of jobs will be within a _ mile of existing and future transit corridors. This indicates that neither projected housing nor jobs are leverage the public transit investment.

2.3.7 Orange County

1. **Residential, see Appendix 2, Worksheet 1: Residential Summaries and Tables 1 and 2**

   The RTP requires 185,412 new households which is equivalent to 194,683 new dwelling units (DUs).

   The GIS analysis indicates that general plan medium density residential (MDR) provides 8,670 net acres; general plan high density residential (HDR) provides 1,384 net acres.

   Utilizing Scenario A: Low End, which has an historic ratio of 5 DUs/acre for MDR and 12 DUs/acre for HDR the subregion could accommodate 49,625 DUs.

   Utilizing Scenario B: High End, which has an historic ratio of 12 DUs/acre for MDR and up to 48 DUs/acre for HDR the subregion could accommodate 160,142 DUs.

   Neither Scenario A: Low End nor Scenario B: High End meet the RTP projection.

   Policy options for this subregion include increasing general plan MDR and/or HDR areas or increasing density above historic norms.

   To provide new DUs to meet the RTP's projected service and retail job growth for this subregion, 676,491 new DUs need to be added. This would far outstretch either Scenario A or B requiring significant additional MDR/HDR land use area and increased density above historic norms.

2. **Jobs, see Appendix 2, Worksheet 2: Jobs Summaries and Table 3**

   The RTP requires 220,137 new retail and service jobs.

   The historic job density for this subregion is 25 jobs/acre (498,520 jobs at 20,288 net acres). The GIS analysis indicates 13,602 net acres of new general plan commercial land use.

   To maintain the historic density of 25 jobs/acre, 334,220 jobs could be accommodated on the 13,602 net acres, significantly more than projected. Therefore, general plan commercial land use could be reduced by 4,643 net acres, or 34%, and still meet the projected jobs at current the current jobs/acre density.

   If all the new jobs were accommodated throughout commercially designated land, the job density would decrease by 12% to 22 jobs/acre.

   Policy options are to re-designate commercial land use to other uses such as residential or to accommodate more jobs.

3. **Transit, see Appendix 2, Worksheet 3: Transit Summaries and Table 4**

   7% of existing MDR/HDR and 9% of existing jobs are within a _ mile of existing transit corridors. Based upon general plan designations 25% of MDR/HDR and 34% of jobs will be within a _ mile of existing and future transit corridors. This indicates that projected jobs are not leveraging the public transit investment.

2.3.8 SANBAG

1. **Residential, see Appendix 2, Worksheet 1: Residential Summaries and Tables 1 and 2**

   The RTP requires 383,573 new households which is equivalent to 402,752 new dwelling units (DUs).

   The GIS analysis indicates that general plan medium density residential (MDR) provides 28,490 net acres; general plan high density residential (HDR) provides 6,180 net acres.

   Utilizing Scenario A: Low End, which has an historic ratio of 5 DUs/acre for MDR and 12 DUs/acre for HDR the subregion could accommodate 247,759 DUs.

   Utilizing Scenario B: High End, which has an historic ratio of 12 DUs/acre for MDR and up to 48 DUs/acre for HDR the subregion could accommodate 669,667 DUs.

   Scenario A: Low End does not provide sufficient DUs to meet the RTP projections. Scenario B: High End does meet the RTP projection.

   Policy options for this subregion include increasing general plan MDR and/or HDR areas or building at the higher end of the historic density.

   To provide new DUs to meet the RTP's projected service and retail job growth for this subregion, 331,768 new DUs need to be added. This number would far outstretch the ability of Scenario A to meet demand. Scenario B could meet would this demand.

2. **Jobs, see Appendix 2, Worksheet 2: Jobs Summaries and Table 3**

   The RTP requires 343,397 new retail and service jobs.

   The historic job density for this subregion is less than 1 job/acre (932,729 jobs at 122,813 net acres). The GIS analysis indicates 30,432 net acres of new general plan commercial land use.

   To maintain the historic density of less than 1 job/acre, 4,007 jobs could be accommodated on the 30,432 net acres. At the same density, the remaining 339,390 jobs would need to be accommodated on an additional 2,577,568 net acres of commercial land, an 8,470% increase.

   Alternatively, if all the new jobs were accommodated throughout commercially designated land, the job density would increase by 8,406% to 11 jobs/acre.

   The extremely low density of existing jobs (less than 1 job/acre) and the limited land availability in the east and west valley areas implies an increase in job density rather than an expansion of commercially designated land.

3. **Transit, see Appendix 2, Worksheet 3: Transit Summaries and Table 4**

   4% of existing MDR/HDR and 0% of existing jobs are within a _ mile of existing transit corridors. Based upon general plan designations 6% of MDR/HDR and 7% of jobs will be within a _ mile of existing and future transit corridors. This indicates that projected jobs are not leveraging the public transit investment.

2.3.9 San Gabriel Valley

1. **Residential, see Appendix 2, Worksheet 1: Residential Summaries and Tables 1 and 2**

   The RTP requires 100,601 new households which is equivalent to 105,631 new dwelling units (DUs).

   The GIS analysis indicates that general plan medium density residential (MDR) provides 19,144 net acres; general plan high density residential (HDR) provides 4,431 net acres.

   Utilizing Scenario A: Low End, which has an historic ratio of 5 DUs/acre for MDR and 12 DUs/acre for HDR the subregion could accommodate 188,873 DUs.

   Utilizing Scenario B: High End, which has an historic ratio of 12 DUs/acre for MDR and up to 48 DUs/acre for HDR the subregion could accommodate 482,403 DUs.

   Both Scenario A: Low End and Scenario B: High End meet the RTP projection.

   To provide new DUs to meet the RTP's projected service and retail job growth for this subregion, 106,327 new DUs need to be added. Both Scenario A and Scenario B would meet this demand.

2. **Jobs, see Appendix 2, Worksheet 2: Jobs Summaries and Table 3**

   The RTP requires 114,247 new retail and service jobs.

   The historic job density for this subregion is 21 jobs/acre (219,599 jobs at 10,446 net acres). The GIS analysis indicates 4,322 net acres of new general plan commercial land use.

   To maintain the historic density of less than 21 job/acre, 90,847 jobs could be accommodated on the 4,322 net acres. At the same density, the remaining 23,400 jobs would need to be accommodated on an additional 1,113 net acres of commercial land, a 26% increase.

   Alternatively, if all the new jobs were accommodated throughout commercially designated land, the job density would increase by 13% to 24 jobs/acre.

   Policy options are either to designate additional commercial land use or to expect more dense commercial areas.

3. **Transit, see Appendix 2, Worksheet 3: Transit Summaries and Table 4**

   11% of existing MDR/HDR and 13% of existing jobs are within a _ mile of existing transit corridors. Based upon general plan designations 17% of MDR/HDR and 23% of jobs will be within a _ mile of existing and future transit corridors. This indicates that projected jobs are not leveraging the public transit investment.

2.3.10 South Bay

1. **Residential, see Appendix 2, Worksheet 1: Residential Summaries and Tables 1 and 2**

   The RTP requires 22,046 new households which is equivalent to 23,148 new dwelling units (DUs).

   The GIS analysis indicates that general plan medium density residential (MDR) provides 10,806 net acres; general plan high density residential (HDR) provides 2,885 net acres.

   Utilizing Scenario A: Low End, which has an historic ratio of 4 DUs/acre for MDR and 12 DUs/acre for HDR the subregion could accommodate 102,508 DUs.

   Utilizing Scenario B: High End, which has an historic ratio of 12 DUs/acre for MDR and up to 44 DUs/acre for HDR the subregion could accommodate 281,270 DUs.

   Both Scenario A: Low End and Scenario B: High End meet the RTP projection.

   To provide new DUs to meet the RTP's projected service and retail job growth for this subregion, 95,262 new DUs need to be added. Scenario A could barely meet this demand. Scenario B could meet this demand.

2. **Jobs, see Appendix 2, Worksheet 2: Jobs Summaries and Table 3**

   The RTP requires 73,639 new retail and service jobs.

   The historic job density for this subregion is 25 jobs/acre (132,977 jobs at 5,254 net acres). The GIS analysis indicates 2,355 net acres of new general plan commercial land use.

   To maintain the historic density of less than 25 job/acre, 59,607 jobs could be accommodated on the 2,355 net acres. At the same density, the remaining 14,032 jobs would need to be accommodated on an additional 554 net acres of commercial land, a 24% increase.

   Alternatively, if all the new jobs were accommodated throughout commercially designated land, the job density would increase by 9% to 28 jobs/acre.

   Policy options are either to designate additional commercial land use or to expect more dense commercial areas.

3. **Transit, see Appendix 2, Worksheet 3: Transit Summaries and Table 4**

   4% of existing MDR/HDR and 4% of existing jobs are within a _ mile of existing transit corridors. Based upon general plan designations 15% of MDR/HDR and 21% of jobs will be within a _ mile of existing and future transit corridors. This indicates that projected jobs are not leveraging the public transit investment.

2.3.11 Ventura

1. **Residential, see Appendix 2, Worksheet 1: Residential Summaries and Tables 1 and 2**

   The RTP requires 72,976 new households which is equivalent to 76,625 new dwelling units (DUs).

   The GIS analysis indicates that general plan medium density residential (MDR) provides 13,071 net acres; general plan high density residential (HDR) provides 4,761 net acres.

   Utilizing Scenario A: Low End, which has an historic ratio of 5 DUs/acre for MDR and 12 DUs/acre for HDR the subregion could accommodate 141,596 DUs.

   Utilizing Scenario B: High End, which has an historic ratio of 12 DUs/acre for MDR and up to 48 DUs/acre for HDR the subregion could accommodate 404,504 DUs.

   Both Scenario A: Low End and Scenario B: High End meet the RTP projection.

   To provide new DUs to meet the RTP's projected service and retail job growth for this subregion, 90,839 new DUs need to be added. Both Scenario A and Scenario B could meet this demand.

2. **Jobs, see Appendix 2, Worksheet 2: Jobs Summaries and Table 3**

   The RTP requires 85,737 new retail and service jobs.

   The historic job density for this subregion is 17 jobs/acre (78,845 jobs at 4,577 net acres). The GIS analysis indicates 4,540 net acres of new general plan commercial land use.

   To maintain the historic density of less than 17 job/acre, 78,211 jobs could be accommodated on the 4,540 net acres. At the same density, the remaining 7,526 jobs would need to be accommodated on an additional 437 net acres of commercial land, a 10% increase.

   Alternatively, if all the new jobs were accommodated throughout commercially designated land, the job density would increase by 8% to 19 jobs/acre.

   Policy options are either to designate additional commercial land use or to expect more dense commercial areas.

3. **Transit, see Appendix 2, Worksheet 3: Transit Summaries and Table 4**

   2% of existing MDR/HDR and 8% of existing jobs are within a _ mile of existing transit corridors. Based upon general plan designations 10% of MDR/HDR and 16% of jobs will be within a _ mile of existing and future transit corridors. This indicates that projected jobs are not leveraging the public transit investment.

2.3.12 Westside Cities

1. **Residential, see Appendix 2, Worksheet 1: Residential Summaries and Tables 1 and 2**

   The RTP requires 7,477 new households which is equivalent to 7,851 new dwelling units (DUs).

   The GIS analysis indicates that general plan medium density residential (MDR) provides 520 net acres; general plan high density residential (HDR) provides 408 net acres.

   Utilizing Scenario A: Low End, which has an historic ratio of 6 DUs/acre for MDR and 14 DUs/acre for HDR the subregion could accommodate 10,459 DUs.

   Utilizing Scenario B: High End, which has an historic ratio of 12 DUs/acre for MDR and up to 43 DUs/acre for HDR the subregion could accommodate 26,553 DUs.

   Both Scenario A: Low End and Scenario B: High End meet the RTP projection.

   To provide new DUs to meet the RTP's projected service and retail job growth for this subregion, 92,993 new DUs need to be added. This would far outstretch either Scenario A or B requiring significant additional MDR/HDR land use area and increased density above historic norms.

2. **Jobs, see Appendix 2, Worksheet 2: Jobs Summaries and Table 3**

   The RTP requires 38,171 new retail and service jobs.

   The historic job density for this subregion is 70 jobs/acre (134,284 jobs at 1,917 net acres). The GIS analysis indicates 400 net acres of new general plan commercial land use.

   To maintain the historic density of less than 70 job/acre, 27,999 jobs could be accommodated on the 400 net acres. At the same density, the remaining 10,172 jobs would need to be accommodated on an additional 145 net acres of commercial land, a 36% increase.

   Alternatively, if all the new jobs were accommodated throughout commercially designated land, the job density would increase by 10% to 77 jobs/acre.

   Policy options are either to designate additional commercial land use or to expect more dense commercial areas.

3. **Transit, see Appendix 2, Worksheet 3: Transit Summaries and Table 4**

   16% of existing MDR/HDR and 25% of existing jobs are within a _ mile of existing transit corridors. Based upon general plan designations 51% of MDR/HDR and 56% of jobs will be within a _ mile of existing and future transit corridors. This indicates that projected jobs are not leveraging the public transit investment.

2.3.13 Western Riverside

1. **Residential, see Appendix 2, Worksheet 1: Residential Summaries and Tables 1 and 2**

   The RTP requires 380,736 new households which is equivalent to 399,773 new dwelling units (DUs).

   The GIS analysis indicates that general plan medium density residential (MDR) provides 28,652 net acres; general plan high density residential (HDR) provides 11,018 net acres.

   Utilizing Scenario A: Low End, which has an historic ratio of 5 DUs/acre for MDR and 12 DUs/acre for HDR the subregion could accommodate 306,053 DUs.

   Utilizing Scenario B: High End, which has an historic ratio of 14 DUs/acre for MDR and up to 48 DUs/acre for HDR the subregion could accommodate 903,253 DUs.

   Scenario A: Low End does not meet the projected demand. Scenario B: High End meets the RTP projection.

   To provide new DUs to meet the RTP's projected service and retail job growth for this subregion, 266,574 new DUs need to be added. Both Scenario A and Scenario B meet this demand.

2. **Jobs, see Appendix 2, Worksheet 2: Jobs Summaries and Table 3**

   The RTP requires 298,267 new retail and service jobs.

   The historic job density for this subregion is 10 jobs/acre (75,755 jobs at 7,370 net acres). The GIS analysis indicates 17,904 net acres of new general plan commercial land use.

   To maintain the historic density of less than 10 job/acre, 184,045 jobs could be accommodated on the 17,904 net acres. At the same density, the remaining 114,222 jobs would need to be accommodated on an additional 11,112 net acres of commercial land, a 62% increase.

   Alternatively, if all the new jobs were accommodated throughout commercially designated land, the job density would increase by 47% to 15 jobs/acre.

   Policy options are either to designate additional commercial land use or to expect more dense commercial areas.

3. **Transit, see Appendix 2, Worksheet 3: Transit Summaries and Table 4**

   4% of existing MDR/HDR and 11% of existing jobs are within a _ mile of existing transit corridors. Based upon general plan designations 10% of MDR/HDR and 11% of jobs will be within a _ mile of existing and future transit corridors. This indicates that projected jobs are not leveraging the public transit investment.

2.3.14 Regional Summary

1. **Residential, see Appendix 2, Worksheet 1: Residential Summaries and Table 1**

   - The following subregions have sufficient carrying capacity to meet the projected DUs under both Scenario A: Low End and Scenario B: High End:
     - Coachella Valley
     - Gateway Cities
     - Las Virgenes/Malibu
     - San Gabriel Valley
     - South Bay
     - Ventura
     - Westside Cities
   - The following subregions do not have sufficient carrying capacity to meet the projected DUs under Scenario A: Low End but do have sufficient carrying capacity under Scenario B: High End:
     - Arroyo Verdugo
     - SANBAG
     - Western Riverside
   - The following subregions have do not have sufficient carrying capacity to meet the projected DUs under either Scenario A: Low End or Scenario B: High End:
     - City of Los Angeles
     - North Los Angeles County
     - Orange County

2. **Residential to Balance Projected Jobs, see Appendix 2, Worksheet 1: Residential Summaries and Table 2**

   - The following subregions have sufficient carrying capacity to meet the number of DUs that would be needed to balance the RTP's projected jobs for that subregion under both Scenario A: Low End and Scenario B: High End:
     - Coachella Valley
     - Las Virgenes/Malibu
     - North Los Angeles County (barely)
     - San Gabriel Valley
     - South Bay (barely)
     - Ventura County
     - Western Riverside
   - The following subregions do not have sufficient carrying capacity to meet the number of DUs that would be needed to balance the RTP's projected jobs for that subregion under Scenario A: Low End but do have sufficient carrying capacity under Scenario B: High End:
     - City of Los Angeles
     - SANBAG
   - The following subregions do not have sufficient carrying capacity to meet the number of DUs that would be needed to balance the RTP's projected jobs for that subregion under either Scenario A: Low End or Scenario B: High End:
     - Arroyo Verdugo
     - Gateway Cities
     - Orange County
     - Westside Cities

3. **Jobs, see Appendix 2, Worksheet 2: Jobs Summaries and Table 3**

- To accommodate projected retail and service jobs, the following subregions need to increase their designated general plan commercial land use if they wish to maintain their historic job density, or increase the job density:
  - Arroyo Verdugo
  - City of Los Angeles
  - Gateway Cities
  - SANBAG
  - San Gabriel Valley
  - South Bay
  - Ventura
  - Westside Cities
  - Western Riverside
- To accommodate projected retail and service jobs, the following subregions have more designated general plan commercial land use than needed by projected jobs at their historic job density. These subregions could either reduce the acreage of commercial land use or decrease the historic job density:
  - Coachella Valley
  - Las Virgenes/Malibu
  - North Los Angeles County
  - Orange County

4. Transit, see Appendix 2, Worksheet 3: Transit Summaries and Table 4

General plans indicate that in the future all subregions increase the percentage of MDR, HDR, and commercial land use within a _ mile of a transit corridor except Las Virgenes/Malibu and North Los Angeles County. Las Virgenes/Malibu has no planned transit that qualifies as set forth by the methodology adopted for this Project. In North Los Angeles County MDR/HDR decreases from 13% to 7% while jobs remain constant. This indicates that neither projected housing nor jobs are leverage the public transit investment.

3.0 METHODOLOGY

The methodology employs the following components:

3.1 Literature Review

The following documents were analyzed:

- *2001 Regional Transportation Plan Upda*te (RTP Update) prepared by SCAG.
- *2000 Regional Housing Needs Assessment* (RHNA) prepared by SCAG.
- *2000 State of the Region Report* prepared by SCAG.
- *2001 New Economy and Jobs/Housing Balance Report* prepared by SCAG.
- *Raising the Roof Report* prepared by the State of California Housing and Community Development Department.
- *Estimating the Housing Infill Capacity of the Bay Area* by Juan O. Sandoval and John Landis.
- *Sprawl Hits the Wall* prepared by the University of Southern California and the Brookings Institution Center on Urban and Metropolitan Policy.

Consistent with the focus of the Consultant's work effort, the following review was presented at the May 24, 2001 meeting of the Growth Visioning Subcommittee, see Appendix 3:

- The *Raising the Roof Report* is a statewide assessment of growth and contains severe limitations with regard to critical issues that leads to the wrong picture:
  - <u>The definition of "developable" land is too restrictive and too gross.</u>

    As stated in the report: "Already Developed Sites…identified by the California Farmland Mapping and Monitoring Project as being urbanized in 1996…include sites developed in commercial, industrial, public, and residential uses. The threshold density used to distinguish urbanized from non-urbanized sites is one residential unit per two acres."
  - <u>The calculation of "density" is not accurate.</u>

    As stated in the report: "The household densities assumed for the counties are very low because they take into account all developed land and average the densities, regardless of the use of the land. None of the densities for the counties represent the average densities for residential land."
  - <u>The report disregards development within urban areas.</u>

    As stated in the report: "Because no federal or state agency collects comprehensive data on sites within urban areas, the comparable potential for infill development could not be established."
- The *New Economy and Jobs/Housing Balance Report* is a good starting point for the growth visioning process raising critically important regional planning issues through a methodologically sound analytical approach. Three sets of issues were addressed:
  - Three separate analyses about the geography of growth and jobs/housing balance were undertaken.

- The geography of technology investment and income disparity was discussed.
- The impact of tax law, fiscalization of land use, and economic competition between jurisdictions was described.

The Consultant reviewed and commented upon the three analyses mentioned above as follows:

- Analysis 1: Jobs To Household Ratio

  This analysis identifies the jobs to households ratio in terms of 1997 and 2025 jobs per Regional Statistical (RSA) divided by households and ranks them in relation to each other. RSA's are classified as follows:

  - Very housing rich (0.00 to 0.75 jobs per household)
  - Housing rich (0.75 to 1.00 jobs per household)
  - Jobs/housing balanced (1.00 to 1.29 jobs per household)
  - Jobs rich (1.29 to 1.45 jobs per household)
  - Very jobs rich (1.45 + jobs per household)

  The limitations to Analysis 1 are as follows:
  - It does not examine the geographic relationships between employment locations and housing locations.
  - Given major employment locations, it does not address the commute shed.
  - It does not represent a desired, optimal, or "balanced" ratio, which results from a policy based decision as much as from a purely technical analysis.
- Analysis 2: Footprint

  This analysis investigates two types of footprints of developable land needed for housing:
  - The household footprint, or the percent of vacant developable land needed for new households
  - Jobs/household footprint, or the percent of vacant developable land needed for households resulting from new jobs

  The limitations to Analysis 2 are as follows:
  - This analysis uses the severely limited assumptions from the R*aising the Roof* report including:
    - Density calculation is county-wide and therefore inaccurate.
    - Developable land definition too restrictive and too gross.
    - It disregards development within urban areas.
    - It does not examine existing land use type and density.
- Analysis 3: Development Capacity

  This analysis is investigates county-wide land use ratios for acres of housing to acres of jobs for developed and vacant zoned land, as set forth in the following table:

Table 5: Development Capacity

Developed		Vacant Zoned	
Acres of Housing	Acres of Jobs	Acres of Housing	Acres of Jobs
3	1	2	1

As the table above indicates, more vacant land is zoned for jobs than the existing ratio, indicating a bias toward tax-income producing uses than provisions for housing, further implying that the fiscalization of land use is inhibiting the housing development market. The limitations to analysis 3 are as follows:

- It does not represent a desired, optimal, or "balanced" ratio between the acres of housing to the acres of jobs.
- It needs to address contemporary and future land use/real estate development models.
- It needs to address real estate value and development feasibility.

As a result understanding the limitations of this predecessor work, the Consultant developed the GIS.

3.2 Geographic Information System (GIS) Analysis

GIS is a computer-based tool for mapping and analyzing spatially co-related data. GIS integrates database operations with the visualization and analysis benefits of mapping. GIS presents information as layers linked by geography, enabling visualization of relationships and scenarios previously unimaginable. The GIS-based visualizations enable a robust policy debate by the Growth Visioning Subcommittee and subregions.

The following data were utilized:

- SCAG 2025 socio-economic projections
- SCAG 1997 standard industrial classifications
- SCAG 1993 existing land use
- SCAG 1997 general plan land use
- Thomas Bros. Maps street grid

See Appendix 5 for the Project Data Dictionary.

The analysis is organized into three parts: housing, jobs, and transit. Each part has a corresponding "View" in the subregional GIS file. Determining the available land use area to absorb the 2001 RTP Update's 2025 projected jobs and housing growth was carried out as follows:

3.2.1 Housing Analysis, see Appendix 2, Worksheet 1: Housing Summary

Local general plan land use (GPLU) data was compiled by subregion. Local general plan residential land use designations were generalized into three categories: low density residential (LDR), medium density residential (MDR), and high density residential (HDR) by subregion. Planned residential densities (DUs per acre) were averaged for each subregion

based on local general plan designations. Therefore, the carrying capacity study directly reflects the unique planned residential densities already established by local agencies.

Existing residential land use was also compiled by subregion based on SCAG's 1993 Land Use. Level 4 land use classifications were generalized into three categories, LDR, MDR, and HDR. Existing residential densities were based on SCAG existing land use designations.

New medium and high density residential footprints were calculated by subtracting the existing MDR and HDR to remain from the general plan MDR and HDR land use. We assume that no further growth will be accommodated in existing MDR and HDR areas; therefore, the new MDR and HDR footprints represent locations for all future growth.

Low and high ranges (Scenario A: Low End and Scenario B: High End, respectively) were calculated for the number of planned dwelling units in new MDR and HDR areas for each subregion. Dwelling units in existing LDR areas re-designated by general plans as new MDR and HDR are accounted for in these calculations.

The number of projected dwelling units for 2025 was calculated based on projected 2025 households multiplied by SCAG's vacancy rate of five percent. The number of projected DUs was then compared to the low and high ranges for planned DUs in new MDR and HDR areas.

Based on a jobs-to-housing ratio specified in the *New Economy and Jobs/Housing Balance Report*, the number of additional dwelling units needed to achieve balance in 2025 was also compared to the low and high ranges of planned dwelling units.

Specific plan and mixed-use designations were not included in the calculation because specific information to calculate number of units was not available.

3.2.2 Jobs Analysis , see Appendix 2, Worksheet 2: Jobs Summaries

The SCAG 2001 RTP projects jobs in three categories: retail, service, and all others. The jobs analysis was limited to retail and service jobs within commercial land use areas.

Local general plan commercial land use designations were aggregated into a single land use category for each subregion.

Existing commercial land use was also aggregated by subregion from SCAG's 1993 Land Use. Existing commercial land uses re-designated by general plans to other uses were netted out.

New commercial land use plus existing commercial land use to remain yields future commercial land use.

Historic job density for each subregion was then calculated for the total number of retail and service jobs within existing commercial land use areas. Existing service and retail jobs were identified using 1997 4-digit standard industrial code (SIC) data.

Two scenarios for accommodating projected 2025 jobs were examined.

- The first scenario calculates the area of new commercial land use required to accommodate new retail and service jobs at that subregions historic job density. The result was compared to the planned new commercial land use. The percentage deficit or surplus of planned new commercial land use was derived. A deficit implies the need for additional planned commercial land use to absorb the projected jobs at historic densities. A surplus of planned commercial land use implies the opportunity to redesignate commercial land to other uses.

- The second scenario calculates the percentage increase or decrease in job density to accommodate new projected retail and service jobs in total commercial land use areas. An increase in job density implies a deficit of general plan commercial land use. A decrease in job density implies a surplus of general plan commercial land use.

3.2.3 Transit, see Appendix 2, Worksheet 3: Transit Summaries

The results of the analysis above were correlated to existing and future transit investments. Transit was limited to Metrorail, light rail, Metrolink commuter rail, Amtrak, and Rapid Bus.

A quarter-mile buffer was created along all existing transit corridors (transit stop data was not available). The area of existing medium and high density residential and commercial land uses were calculated within the quarter-mile buffer. The land area was translated to the number of dwelling units and jobs served by existing transit corridors. The percentage of total medium and high density dwelling units and service and retail jobs served by existing regional transit was calculated.

A quarter-mile buffer was created along all 2001 RTP (baseline + plan) transit corridors. The area was calculated for future medium and high density residential and commercial land uses within this quarter mile buffer. The land area was translated to the number of dwelling units and jobs served by future transit corridors. The percentage of total medium and high density dwelling units and service and retail jobs served by future regional transit was calculated.

4.0 LIMITATIONS AND RECOMMENDATIONS

As a result of undertaking this study, the methodology was subject to several limitations, outlined below, for which we have developed correlated recommendations:

4.1 General Plan Land Use (GPLU)

- **Limitation:** GPLU is unique to each city. In some cases, subregions assigned common land use designations. In others, the Consultant created a common subregional classification by averaging across cities.

- **Recommendation:** Develop a standard region wide classification system that accounts for local differentiation.

4.2 Aligning GPLU and Existing Land Use

- **Limitation:** In some cases, the general plan land use and existing land use don't align in the GIS resulting in "shards." Discrepancies were accounted by eliminating polygons under certain acreage depending upon the land use.

- **Recommendation:** Develop an accurate region wide geo-referenced land use map that can be used for planning at all scales (regional to local).

4.3 Job Projections

- **Limitation:** Job projections were provided and developed only for Retail and service for which the majority of trips are generated. Job projections were not provided by SCAG for "other" jobs which includes the following:
  - Agriculture/forestry
  - Transportation/Public Utilities
  - Mining
  - Wholesale Trade
  - Construction
  - Finance/Insurance/Real Estate
  - Manufacturing
  - Public Administration

- **Recommendation:** Extend the analysis for "other jobs" as part of the growth visioning process.

4.4 Land Use and Jobs Data Mismatch

- **Limitation:** Land use data and jobs data come from different time periods so there is a mismatch.

- **Recommendation:** Land use data and jobs data should be developed in an updateable format.

4.5 Existing Land Use Area

- **Limitation:** Existing LU is limited to contiguous areas greater than 2.5 acres.

- **Recommendation:** Use GIS to get this to the parcel scale.

4.6 Land Use Standards

- **Limitation:** SCAG general plan land use is conservatively low: two dwelling units per acre for Low Density Residential and 5 to 12 dwelling units per acre for Medium Density Residential.

- **Recommendation:** Increase minimum low density standard to 5 dwelling units per acre and minimum medium density standard to 12 dwelling units per acre.

4.7 RTP 2025 Projects

- **Limitation:** Investigation limited to some transit identified in the 2001 RTP Update.

- **Recommendation:** for the growth visioning process, extend the analysis developed herein to other transportation infrastructure such as roads and highways.

4.8 Jurisdiction

- **Limitation:** Los Angeles County unincorporated GPLU was not provided. Imperial County GPLU is only classified by city boundaries.

- **Recommendation:** For Los Angeles County, develop the analysis set forth herein after obtaining updated data or use old data. For Imperial County GPLU obtain more detailed data from local cities and complete the analysis set forth herein.

4.9 Real Estate Development

- **Limitation:** The analysis does not include an economic validation or real estate development model.

- **Recommendation:** Develop an economic validation or real estate development model.

4.10 Specific Plans and Mixed-Use

- **Limitation:** Specific plans and mixed-use developments usually don't describe the land use mix in SCAG's general plan land use data and therefore were excluded from this analysis.

- **Recommendation:** Cities need to provide such land use information to their subregion and SCAG.

4.11 Other Considerations

Other issues for consideration in the growth visioning process include the following:

- Investigate and determine appropriate jobs/housing balance ratios.

- Establish region-wide subregional performance standards for HDR, MDR, and commercial land use within _ mile of transit corridor investments.

5.0 APPENDICES

5.1 Appendix 1: Geographic Information Systems Customized Applications

Under separate cover

5.2 Appendix 2: Spreadsheet of Housing, Jobs, and Transit by Subregion (Microsoft Excel 2000)

Under separate cover

5.3 Appendix 3: Presentation made to the Growth Visioning Subcommittee on May 24, 2001, "*Implications Of The 2001 RTP Update On Urban Form*" (Microsoft PowerPoint 2000)

Under separate cover

5.4 Appendix 4: Presentation made to the Growth Visioning Subcommittee on July 10, 2001, *"Findings: Implications Of The 2001 RTP Update On Urban Form*" (Microsoft PowerPoint 2000)

Under separate cover

5.5 Data Dictionary

Under separate cover

5.1 Appendix 1: Geographic Information Systems Customized Applications

Under separate cover

5.2 Appendix 2: Spreadsheet of Housing, Jobs, and Transit by Subregion (Microsoft Excel 2000)

Under separate cover

5.3 Appendix 3: Presentation made to the Growth Visioning Subcommittee on May 24, 2001, "*Implications Of The 2001 RTP Update On Urban Form*" (Microsoft PowerPoint 2000)

Under separate cover

5.4 Appendix 4: Presentation made to the Growth Visioning Subcommittee on July 10, 2001, *"Findings: Implications Of The 2001 RTP Update On Urban Form*" (Microsoft PowerPoint 2000)

Under separate cover

5.5 Data Dictionary